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No.

In the Supreme Court of the United States

OCTOBER TERM, 1996

SUBARU OF AMERICA, INC., AND
FUJI HEAVY INDUSTRIES, INC., PETITIONERS

v.

STEVEN D. COMPTON, RESPONDENT

Petition for a Writ of Certiorari to the United States Court of Appeals for the Tenth Circuit

PETITION FOR A WRIT OF CERTIORARI

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QUESTIONS PRESENTED

1. Whether the factors set forth in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), for determining the admissibility of expert testimony under Rule 702 of the Federal Rules of Evidence are inapplicable if the expert proposes to rely not on any "principle" or "methodology" of engineering science but rather upon his "experience" or "training" as an engineer.

2. Whether, if *Daubert* applies to the testimony of respondent's engineering expert, that testimony — which the district court derided as "preposterous" and "the most ill-supported weakest personal opinion I've ever heard" — was erroneously admitted under Rule 702.

RULE 29.6 STATEMENT

Pursuant to Supreme Court Rule 29.6, petitioners state that the parent company of Subaru of America, Inc. (Subaru) is Fuji Heavy Industries, Inc. (Fuji), and that Fuji has no parent company. Fuji's only non-wholly owned subsidiary is Subaru-Isuzu Automobile, Inc., which is 51% owned by Fuji and 49% owned by Isuzu Motors Limited. Subaru's only non-wholly owned subsidiary is Pleiades Insurance Co., Ltd. (Pleiades). Subaru holds 119,998 shares of Pleiades, and Mary C. Harrington and Joseph P. Scharff each hold 1 share.

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PETITION FOR A WRIT OF CERTIORARI

Petitioners Subaru of America, Inc., and Fuji Heavy Industries, Inc., petition for a writ of certiorari to review the judgment of the United States Court of Appeals for the Tenth Circuit in this case.

OPINIONS BELOW

The opinion of the court of appeals (App., *infra*, 1a-12a) is reported at 82 F.3d 1513. The opinion of the district court (App., *infra*, 13a-20a) is unreported.

JURISDICTION

The judgment of the court of appeals was entered on April 30, 1996. A petition for rehearing was denied on July 25, 1996 (App., *infra*, 31a-32a). The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

RULE INVOLVED

Federal Rule of Evidence 702 provides:

> **Testimony by Experts**
>
> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

STATEMENT

This product liability action arose out of an automobile accident that took place in 1988 on a highway near Scott City, Kansas. The plaintiff, Steven D. Compton, sustained severe injuries when the 1982 Subaru GL Station Wagon in which he was traveling along with four teenaged friends skidded off the road, entered a ditch, and rolled over twice. Compton was riding in the back seat without wearing a seatbelt; he and the other occupants of the automobile had consumed numerous six-packs of beer earlier that evening. The accident occurred when the station wagon was weaving back and forth at approximately 60 miles per hour across the center line of the road while chasing another car driven by Compton's former girlfriend. One of the teenagers reached over and yanked the steering wheel, causing the Subaru to veer out of

control. None of the other occupants was seriously injured in the accident.

Compton brought suit against the automobile's manufacturer, Fuji Heavy Industries, Ltd. (Fuji) and its distributor, Subaru of America, Inc. (Subaru), contending that the Subaru was defectively designed because it lacked sufficient roof support structures and permitted excessive "roof crush." To support that theory, plaintiff proffered the testimony of Larry Bihlmeyer, an aerospace and mechanical engineer who had once worked in the auto industry but had no direct experience in designing automobile roofs or roof supports. Bihlmeyer testified that the Subaru's roof should have been designed to deform no more than 2½ inches in rollover accidents occurring at 50 to 70 miles per hour (and involving impact forces of 48,000 to 71,000 pounds). It is undisputed that Federal Motor Vehicle Safety Standard (FMVSS) 216, 49 C.F.R. § 571.216, which sets forth the roof crush resistance standard applicable to the Subaru wagon involved in the accident, requires that the front portion of the Subaru's roof deform no more than 5 inches when subjected to a force of 3,600 pounds. It is also undisputed that the Subaru's design exceeded FMVSS 216: it deformed only 2 inches when subjected to a force of 4,625 pounds.

Subaru and Fuji maintained that Bihlmeyer's engineering testimony was inadmissible under the standards for expert testimony set forth in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), because it was not grounded in any particular methodology or reasoning, did not depend on accepted industry standards or on any scientific knowledge or principle, had not been subjected to peer review or testing or been generally accepted by the relevant expert community, and ultimately consisted of nothing more than Bihlmeyer's personal opinion that the roof was not sufficiently resistant to crush. The district judge permitted Bihlmeyer to testify, explaining that he was constrained to do so under the Tenth Circuit's "position of extreme liberality with respect to admissibility of expert testimony in products liability cases." App., *infra*, 25a. Nevertheless, the judge harshly criticized Bihlmeyer as a "marginal expert" who "has little if any knowledge about what he is purporting to testify about." *Id.* at 30a-31a. After hearing Bihlmeyer's testimony, the judge called his

testimony "preposterous" and "the most ill-supported weakest personal opinion I've ever heard," and referred to the design standard proposed by Bihlmeyer as "more applicable to a Sherman tank than to any vehicle which the ordinary consumer would drive." Pet. C.A. App. 226, 235; App., *infra*, 20a n.5.

Based on Bihlmeyer's testimony, the jury returned a verdict against petitioners of $6,574,081. The Tenth Circuit affirmed, holding that *Daubert* was inapplicable *precisely because* Bihlmeyer's testimony was based not on any "principle or methodology" or "particular technique" of engineering science but rather "solely upon [his] experience and training" as an engineer. App., *infra*, 8a-9a.

A. Proceedings In The Trial Court.

The *only* theory of liability presented to the jury was plaintiff's claim that the Subaru wagon was defectively designed because its roof and roof structures were insufficiently resistant to deformation. The *only* evidence plaintiff presented to support that theory was the testimony of Larry Bihlmeyer.

1. *Bihlmeyer's Qualifications And Testimony Concerning The Alleged Defect.* a. Larry Bihlmeyer, who received a master's degree in mechanical engineering in 1975, worked from 1972 to 1986 in the light truck engineering department of Ford Motor Company. Pet. C.A. App. 281-83, 363-64, 392. During that time, he was never assigned to the automobile or station wagon engineering department or to the body structures group (which had responsibility for the design of roofs and roof supports). *Id.* at 368, 370, 392-93. Bihlmeyer's only involvement with any decision concerning a vehicle roof was as part of a task force that was developing a pickup truck's roof. *Id.* at 302, 304, 398-400. Bihlmeyer's limited role was to try to "commonize" parts to keep costs down. *Id.* at 398-400.

In 1987, Bihlmeyer became a self-employed "consulting engineer" focusing on injury-producing accidents. Pet. C.A. App. 323. In his work as a consultant, Bihlmeyer has testified in cases involving a wide array of products. *Id.* at 542-44. Bihlmeyer has also performed design analyses on the roof and roof support structures of numerous vehicles. *Id.* at 325, 347-48, 410-11, 414-15. Bihlmeyer acknowledged that the 1982 Subaru station wagon

involved in this accident was designed a decade or so before he began his career as a consulting engineer. *Id.* at 382, 415.

Bihlmeyer admitted that during his entire engineering career, including his career as a consultant and expert witness, he had never been responsible for designing the roof structure of a vehicle from the standpoint of selecting materials and determining strength and rigidity requirements. Pet. C.A. App. 402-03, 405. Bihlmeyer also conceded that he is not an expert in welding, metallurgy or materials. *Id.* at 406.

b. The district judge summarized Bihlmeyer's methodology in arriving at his opinion that the Subaru's roof and roof support system was defective as follows:

> The methodology * * * included inspection of the accident and exemplar cars, taking of measurements and photos, preparation of sketches, performance of a "design engineering review and analysis," review of depositions, and research and review of technical papers and vehicle specifications.

App., *infra*, 18a. Bihlmeyer repeatedly stated that his testimony was based on general engineering "concepts" such as strength of materials, structural mechanics, engineering analysis and dynamic and static loads. Pet. C.A. App. 286, 309, 311-14, 323-26.

Bihlmeyer testified that there is no industry or government standard that establishes *headroom* (as opposed to roof crush) requirements for vehicles designed and sold in this country. Pet. C.A. App. 439. Nevertheless, Bihlmeyer's design standard proceeded from the assumption that an adequate design would have preserved a certain amount of headroom following a rollover accident.[1] On cross-examination, Bihlmeyer explained the standard by which he judged the design of a vehicle roof. He stated that there should be no more than 2½ inches of crush and 33 inches of headroom remaining after a rollover accident, even if all the force of a crushing impact was focused on a small area of

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[1] To formulate his "headroom" standard, Bihlmeyer purported to rely on six sources, several of which said nothing about headroom and none of which described any standard that had ever been used in the design of any actual vehicle sold to consumers. App., *infra*, 4a; Pet. C.A. App. 432, 437-39.

the roof (as it was in this case). *Id.* at 626-27, 631-32. He believed that crush should be limited by design to ensure 33 inches of remaining headroom on a mandatory basis for accidents at 50 mph and "would shoot for 70 miles per hour." *Id.* at 629, 632. This would require the roof of a vehicle to withstand "average" forces of between 48,000 and 71,000 pounds. *Id.* at 632. Bihlmeyer acknowledged that "peak" or maximum accident forces may be greater than average forces, but he was unable to calculate the peak forces that might be involved in an accident that would produce average forces between 48,000 and 71,000 pounds. *Id.* at 631-32.

Bihlmeyer did not reveal the reasoning and methodology employed in arriving at his conclusions except that he intended to make the roof "stronger." Pet. C.A. App. 514-16. The record is equally silent concerning what materials Bihlmeyer would have employed to strengthen the roof of the Subaru, the weight of the materials, and their effect, if any, on vehicle handling and the operator's field of vision. Bihlmeyer offered no testimony that the design standard he espoused had ever been adopted by any manufacturer or any other person or organization.

Bihlmeyer acknowledged that the process of design is a complex task and that testing is a very important part of any such process because what looks good on paper might require multiple revisions based on actual experience. Pet. C.A. App. 262, 265-66, 362-63, 372. He conceded, however, that he had done no testing on either the accident vehicle or the exemplar vehicle. *Id.* at 397. Plaintiff offered no evidence that Bihlmeyer or anyone else had ever tested the alternative design that he claimed would have prevented his injury.

2. *The Preliminary Inquiry Into Admissibility.* In seeking to exclude Bihlmeyer's testimony under Rules 104(a) and 702 of the Federal Rules of Evidence, Subaru and Fuji argued that Bihlmeyer's knowledge and experience in the area of designing automobile roofs and roof supports were non-existent, and his opinion about the adequacy of the Subaru's roof design was nothing more than "a personal judgment with none of the safeguards required by * * * *Daubert* [v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)]." App., *infra*, 22a. Making a virtue of necessity, plaintiff responded that *Daubert*

"doesn't enter into this" because Bihlmeyer's testimony was not founded on any scientific tests, studies, or technology. *Id.* at 22a-24a. The district judge agreed with plaintiff, explaining that he was obliged to adhere to the Tenth Circuit's "position of extreme liberality with respect to admissibility of expert testimony in products liability cases," as set forth in pre-*Daubert* decisions. *Id.* at 25a.

Nonetheless, the district judge found that Bihlmeyer's "expertise" was insubstantial. The judge stated that Bihlmeyer "has little if any knowledge about what he is purporting to testify about" and "doesn't know beans about welding in my opinion and he knows very little about roofs." App., *infra*, 25a-26a. The judge also referred to Bihlmeyer's "marginal qualifications and knowledge" and described his expertise as "little or none in this area." *Id.* at 27a.

3. *Defendants' Motions For Judgment As A Matter of Law.* a. At the close of all the evidence, Subaru and Fuji moved for judgment as a matter of law under Rule 50(a) of the Federal Rules of Civil Procedure. Pet. C.A. App. 216. They argued that no reasonable jury could find liability based on Bihlmeyer's testimony, which was the only evidence of design defect presented by plaintiff. In response to the argument that Bihlmeyer's testimony was based on an "absolutely * * * ludicrous standard" because it would "require roof resistance to a force of between 20 and 30 times vehicle weight, producing only half the amount of crush that the federal standard permits at 1½ times vehicle weight" (Pet. C.A. App. 226), the district judge stated:

> I know. *It's preposterous, I agree.* I mean, I can't believe that it should be viewed really any other way, but that's — maybe — that calls, I'm afraid, on me to weigh the evidence and I'm not supposed to do that. I'm not the finder of fact.

Ibid. (emphasis added). The district judge described Bihlmeyer's testimony as "the *most ill-supported weakest personal opinion I've ever heard.*" *Id.* at 235 (emphasis added). The judge also noted that if he were to deny the motion and "allow the jury to decide this and they find in favor of [plaintiff], unfortunately I'm going to have to look very very carefully at this because I'm very

troubled by it." *Id.* at 230. In the end, however, the judge denied the motion.

Subsequently, the jury found Subaru and Fuji 56% at fault and returned a verdict of $6,574,081 in plaintiff's favor. App., *infra*, 2a.

b. Following the verdict, Subaru and Fuji renewed their Rule 50 motion for judgment. The district judge denied the motion in an unpublished opinion (App., *infra*, 13a-20a) in which he again rejected petitioners' argument based on *Daubert*. Nonetheless, the judge reiterated his extreme skepticism about the value of Bihlmeyer's testimony. "Rereading Bihlmeyer's testimony," the judge stated, "has done nothing to change the court's extremely low opinion of Bihlmeyer's credibility and of the validity of his opinions." App., *infra*, 20a (emphasis omitted). The court pointedly added:

> Bihlmeyer's design criterion, which would limit roof crush to no more than 2½ inches under average forces of 48,000 to 71,000 pounds, *seems more applicable to a Sherman tank than to any vehicle which the ordinary consumer would drive.*

Id. at 20a n.5 (emphasis added).

B. Proceedings In The Court of Appeals.

The court of appeals affirmed. App., *infra*, 1a-12a. The court began by noting that, "prior to *Daubert*," trial judges in the Tenth Circuit were "'accorded broad discretion in determining the competency of expert witnesses.'" *Id.* at 6a (quoting *Wheeler* v. *John Deere Co.*, 935 F.2d 1090, 1100 (10th Cir. 1991)). That discretion, however, could not be "employ[ed] * * * to restrict viable and relevant theories offered by a party." *Ibid.* (internal quotations omitted). Because under Rule 702 "the touchstone of admissibility * * * is helpfulness to the trier of fact," "as long as a logical basis exists for an expert's opinion * * * the weaknesses in the underpinnings of the opinion[ ] go to the weight and not the admissibility of the testimony." *Ibid.* (internal quotations omitted).

The court of appeals stated that "we do not believe *Daubert* completely changes our traditional analysis under Rule 702." App., *infra*, 8a. According to the Tenth Circuit, the *Daubert* factors "are applicable *only* when a proffered expert relies on *some*

principle or methodology." *Ibid.* (emphasis added). Where "expert testimony is based solely upon *experience or training*," however, "application of the *Daubert* factors is unwarranted." *Ibid.* (emphasis added). See also *ibid.* (*Daubert* applies only "in cases involving unique, untested, or controversial methodologies or techniques"); *ibid.* ("*Daubert* sets out additional factors the trial court should consider under Rule 702 if an expert witness offers testimony *based upon a particular methodology or technique*") (emphasis added).

Applying that distinction to the case before it, the Tenth Circuit held that *Daubert* was wholly inapplicable to Bihlmeyer's "expert" testimony. That testimony, the court explained,

> was not based on any particular methodology or technique. Rather, Mr. Bihlmeyer reached his expert conclusions by drawing upon general engineering principles and his twenty-two years of experience as an automotive engineer. Absent some particular methodology or technique, *Daubert* simply has little bearing on Mr. Bihlmeyer's testimony.

App., *infra*, 9a.[2]

REASONS FOR GRANTING THE PETITION

This case presents the Court with an opportunity to provide much-needed guidance to the lower courts regarding the applicability of *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), outside the context of expert testimony concerning a novel scientific technique (the kind of evidence at issue in *Daubert*). Specifically, it is essential that the Court clarify how the *Daubert* framework applies to a common and important type of "applied scientific" evidence in federal litigation — expert engineering testimony proffered to demonstrate that a consumer product is defectively designed. The Tenth Circuit held that *Daubert* is completely inapplicable in that situation, and that a trial judge accordingly has *no* duty under Rule 702 of the Federal Rules

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[2] Because the Tenth Circuit found that Bihlmeyer's testimony satisfied the requirements of Rule 702, it also rejected the contention that the district judge erred in failing to grant the motion of Fuji and Subaru for judgment as a matter of law. App., *infra*, 10a-12a.

of Evidence to evaluate the reliability of such expert testimony, even if the expert fails to rely on *any* principle or methodology of engineering science. As a result, the jury in this case was permitted to award nearly $7 million in damages based on "expert" engineering testimony that the trial court found to be "preposterous."

This ruling, which is symptomatic of the pervasive confusion in the lower courts over *Daubert*'s meaning, is squarely at odds with the decisions of other circuits, misapprehends this Court's *Daubert* decision, and creates a huge loophole by means of which the "gatekeeper" obligations imposed on trial judges by Rule 702 can be easily circumvented. Further review is plainly warranted.

A. The *Daubert* Decision.

Daubert v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), involved a lawsuit alleging that several children were born with birth defects because their mothers had ingested Bendectin, a prescription antinausea drug, during their pregnancies. At issue was the admissibility of certain expert scientific testimony concerning the causal connection between Bendectin and the birth defects.

The Court's decision had two aspects. The first was its rejection of the so-called "*Frye* test" for determining the admissibility of novel scientific evidence. See *Frye* v. *United States*, 293 F. 1013 (D.C. Cir. 1923). Under *Frye*, evidence is admissible only if derived from a method that has gained "'general acceptance in the particular field in which it belongs.'" *Daubert*, 509 U.S. at 586 (emphasis omitted) (quoting *Frye*, 293 F. at 1014). In *Daubert*, the Ninth Circuit had applied this test in upholding the exclusion of the experts' evidence. This Court reversed, explaining that *Frye* was superseded by the adoption of the Federal Rules of Evidence, and in particular by Rule 702, which provides:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Fed. R. Evid. 702.

The second aspect of the Court's opinion, and the one pertinent here, is the Court's explanation of the district court's obligation, under Rule 702, to "ensure that *any and all scientific testimony or evidence* admitted is not only *relevant*, but *reliable*." 509 U.S. at 589 (emphasis added). Under the terms of Rule 702, the Court explained, "[t]he subject of an expert's testimony must be 'scientific . . . knowledge,'" a phrase that both "implies a grounding in the methods and procedures of science" and "connotes more than subjective belief or unsupported speculation." *Id.* at 589-90. The Court elaborated:

> [I]n order to qualify as "scientific knowledge," an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation — *i.e.*, "good grounds," based on what is known.

Id. at 590. "In short, the requirement that an expert's testimony pertain to 'scientific knowledge' establishes a standard of evidentiary reliability." *Ibid.* See also *id.* at 590 n.9 ("In a case involving scientific evidence, *evidentiary reliability* will be based upon *scientific validity*.") (emphasis in original). Under Rule 702, then, an expert's opinion must "have a reliable basis in the knowledge and experience of his discipline." *Id.* at 592.

The Court pointed out that in addition to "scientific . . . knowledge," Rule 702 refers to "technical, or other specialized knowledge." 509 U.S. at 590 & n.8. "Our discussion," the Court stated, "is limited to the scientific context because that is the nature of the expertise offered here." *Ibid.* But the Court made clear that "[a]lthough the *Frye* decision itself focused exclusively on 'novel' scientific techniques, we do not read the requirements of Rule 702 to apply specially or exclusively to unconventional evidence." *Id.* at 592 n.11.

To assist the lower court on remand, the Court provided guidance as to how a district judge must determine, as a preliminary matter under Rule 104(a) of the Federal Rules of Evidence, whether an expert "is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue." 509 U.S. at 592. The Court identified four factors that bear on "whether the reasoning

or methodology underlying the testimony is scientifically valid and * * * properly can be applied to the facts in issue." *Id.* at 592-93.

First, the Court noted that "[o]rdinarily, a key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested." 509 U.S. at 593. A second consideration, the Court continued, "is whether the theory or technique has been subjected to peer review and publication." *Ibid.* "[S]ubmission to the scrutiny of the scientific community is a component of 'good science,' in part because it increases the likelihood that substantive flaws in methodology will be detected." *Ibid.* Third, a district court "ordinarily should consider the known or potential rate of error * * * and the existence and maintenance of standards controlling the technique's operation." *Id.* at 594. Fourth and finally, "'general acceptance' can yet have a bearing on the inquiry." *Ibid.* "Widespread acceptance can be an important factor in ruling particular evidence admissible, and a known technique which has been able to attract only minimal support within the community * * * may properly be viewed with skepticism." *Ibid.* (internal quotations omitted).

Thus, in *Daubert* this Court held that under Rule 702 a district judge must serve as a "gatekeeper" to ensure that all expert testimony and evidence presented in a federal courtroom is both reliable and relevant, and must (in the case of expert testimony that is based on *scientific* knowledge) undertake "a preliminary assessment of whether the reasoning or methodology underlying the testimony is *scientifically valid*." 509 U.S. at 589, 592-93 (emphasis added). And the Court set forth various factors that should guide the trial judge's determination of whether an expert's opinion has "a reliable basis in the knowledge and experience of his discipline." *Id.* at 592.

B. The Tenth Circuit's Decision Is Inconsistent With *Daubert* And In Conflict With The Decisions Of Other Circuits.

The Tenth Circuit avoided any evaluation of the *Daubert* factors (or other indicia of evidentiary reliability) on the ground that *Daubert* is "applicable *only* when a proffered expert relies on *some principle or methodology*." App., *infra*, 8a (emphasis

added). Where "expert testimony is based solely upon *experience or training*," the court of appeals concluded, "application of the *Daubert* factors is unwarranted." *Ibid.* (emphasis added).

Under the Tenth Circuit's interpretation, *Daubert* simply had no relevance to Bihlmeyer's expert testimony. His testimony

> was not based on any particular methodology or technique. Rather, Mr. Bihlmeyer reached his expert conclusions by drawing upon general engineering principles and his twenty-two years of experience as an automotive engineer.

App., *infra*, 9a. On the strength of that distinction, the court of appeals treated the admissibility question as governed entirely by the Tenth Circuit's pre-*Daubert* case law, which required as a basis for admissibility only that an expert's opinion have "a logical basis." *Id.* at 6a (internal quotations omitted).

1. The Tenth Circuit's analysis is inconsistent with *Daubert* in several critical respects. To begin with, even though *Daubert* was a case involving novel or unconventional forms of *scientific* evidence, the Court's holding was not limited to such evidence: "the Rules of Evidence — especially Rule 702 — do assign to the trial judge the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." 509 U.S. at 597; accord *id.* at 589 (Rule 702 "clearly contemplates some degree of regulation of the subjects and theories about which an expert may testify"). As the Sixth Circuit has stated, *Daubert*'s "language relative to the 'gatekeeper' function of federal judges is applicable to all expert testimony offered under Rule 702." *Berry* v. *City of Detroit*, 25 F.3d 1342, 1350 (6th Cir. 1994), cert. denied, 115 S. Ct. 902 (1995). See also American College of Trial Lawyers, *Standards and Procedures for Determining the Admissibility of Expert Evidence After Daubert*, 157 F.R.D. 571, 577 (1994) (*Daubert* requires "a single conceptual framework for evaluating the admissibility of all types of expert evidence").

Moreover, this Court's analysis in deriving the twin requirements that expert evidence be reliable and relevant was rooted in the text of Rule 702. The language of the Rule, the Court explained, demonstrates that an expert opinion must be founded in "knowledge," a term that "connotes more than subjective belief or unsupported speculation" and signifies "any

body of known facts or * * * any body of ideas inferred from such facts or accepted as truths *on good grounds*." 509 U.S. at 590 (emphasis added) (internal quotations omitted). While the Court also went on to discuss the meaning of the adjective "scientific," its discussion of the term "knowledge" plainly applies to any kind of expert testimony offered under Rule 702.

Finally, the Tenth Circuit's conclusion that *Daubert* may be bypassed altogether as long as an engineering expert forgoes reliance on *any* method or technique of engineering science is impossible to reconcile with this Court's statement that a district court, under Rule 702, must "ensure that *any and all scientific testimony or evidence* admitted is not only *relevant*, but *reliable*." 509 U.S. at 589 (emphasis added). That statement demonstrates that if the *subject matter* of expert testimony is "scientific," then *Daubert* is fully applicable. See *Cummins* v. *Lyle Indus.*, 93 F.3d 362, 367-68 (7th Cir. 1996) (in case involving engineer's testimony concerning design defect, stating that "[i]n the context of theoretical and applied science," *Daubert* "places on the court the obligation to ensure that the proffered testimony pertains to scientific knowledge").

It cannot seriously be disputed that an engineer's opinion concerning whether the design of an automobile's roof and roof support structures is defective is "scientific" in nature. Engineering is "*the science* by which the properties of matter and the sources of energy in nature are made useful to man in structures, machines, and products." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 752 (1986) (emphasis added). As Bihlmeyer himself conceded, engineering involves knowledge of physics and of physical forces; the physical properties and strength of materials; structural analysis; metallurgy and welding; and structural and vehicle dynamics. Pet. C.A. App. 257-59, 263-65. The design of an automobile roof and roof structures requires an engineer to draw on this scientific knowledge in analyzing a number of complex variables, including (1) the wide variety of rollovers that can occur; (2) occupant kinematics, or the motion of occupants inside the vehicle; and (3) the desirability (acknowledged by Bihlmeyer) of some degree of "roof crush" to absorb the impact of the physical forces and loads that are exerted during the rollover. *Id.* at 550-55, 558. And, of course, engineers (like

other experts whose work is rooted in scientific knowledge) consider *testing* to be indispensable to the proper evaluation of design defects and of alternative designs — as Bihlmeyer himself conceded. See *id.* at 262, 362. Because engineering testimony of the kind offered by Bihlmeyer is plainly rooted in scientific knowledge, and because under *Daubert* "*any and all* scientific testimony or evidence" must be evaluated for evidentiary reliability (509 U.S. at 589 (emphasis added)), the Tenth Circuit was mistaken in suggesting that it had no need to decide whether Bihlmeyer's testimony was based on scientific knowledge.

2. The Tenth Circuit's decision is also in conflict with the decisions of other circuits in several important respects.

a. The Tenth Circuit's holding that *Daubert* applies "*only* when a proffered expert relies on *some principle or methodology*," and not when "expert testimony is based solely upon *experience or training*" (App., *infra*, 8a (emphasis added)), is at odds with the settled rule in the Seventh Circuit. The Seventh Circuit has flatly rejected the notion that expert scientific testimony that would otherwise be subject to scrutiny for reliability and relevance under *Daubert* may avoid such scrutiny if the expert purports to rely on "experience" or "observation" rather than on the pertinent scientific method. Thus, in *O'Conner* v. *Commonwealth Edison Co.*, 13 F.3d 1090 (7th Cir.), cert. denied, 114 S. Ct. 2711 (1994), the court of appeals upheld the exclusion of a treating physician's testimony that a plaintiff's cataracts had been caused by radiation exposure. The medical expert purported to testify based solely on his observations of the plaintiff's cataracts. But because none of the articles cited and relied on by the expert "indicates that radiation-induced cataracts can be identified by mere observation," the Seventh Circuit explained, the expert's testimony "has no basis in scientific fact." *Id.* at 1106.

Similarly, in *Rosen* v. *Ciba-Geigy Corp.*, 78 F.3d 316 (7th Cir. 1996), cert. denied, 1996 U.S. LEXIS 4783 (Oct. 7, 1996),[3]

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[3] The petition for certiorari in *Rosen*, as to which respondents waived response, did not allege or identify any conflict in the circuits. See No. 95-1986 Pet., *Rosen* v. *Ciba-Geigy Corp.* There was no need for further review in *Rosen* because it faithfully applied the legal principles set forth

the court of appeals upheld the exclusion under *Daubert* of testimony of a "distinguished cardiologist and department head at the University of Chicago" concerning the causal link between a plaintiff's heart attack and the wearing of a nicotine patch. *Id.* at 318. Because the expert offered "neither a theoretical reason" nor "any experimental, statistical, or other scientific data from which such a causal relation might be inferred," but only "an insightful, even an inspired, hunch," the testimony was "not real science" and thus properly excluded. *Id.* at 318-19.[4] As *O'Conner* and *Rosen* make clear, the Rule 702 inquiry into reliability and relevance cannot be avoided merely because an expert purports to rely on

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in *Daubert*.

[4] See also *Deimer* v. *Cincinnati Sub-Zero Products, Inc.*, 58 F.3d 341, 345 (7th Cir. 1995) (in upholding exclusion of testimony concerning design defect by expert engineer who "proffered unverified statements that were unsupported by any scientific method," explaining that "personal observation" is "not sufficient to establish a methodology based in scientific fact"); *Navarro* v. *Fuji Heavy Indus., Ltd.*, 925 F. Supp. 1323, 1328-29 (N.D. Ill. 1996) (in holding inadmissible engineer's testimony concerning defective design of automobile's suspension system that was based on expert's inspection of vehicle, review of depositions, knowledge of literature, and expert's "training" and "experience," explaining that testimony lacked a reliable foundation because expert failed to "set forth the methodology employed in reaching his conclusions"); *Wintz* v. *Northrop Corp.*, 1995 U.S. Dist. LEXIS 18952, at *7 (N.D. Ill. Dec. 22, 1995) (in excluding toxicologist's opinion that plaintiff's disease was caused by exposure to bromide as "lacking in scientific reliability," explaining that "personal observation is not sufficient to establish a methodology based in scientific fact"); *Arrendondo* v. *Uniroyal Goodrich Tire Co.*, 1995 U.S. Dist. LEXIS 19943, at *12-*13 (D. Ariz. Aug. 15, 1995) (in excluding testimony on tire failure based on expert's "experience in the field and years of examining tires," explaining that "[s]uch testimony *requires a link to a scientific method*, which incorporates manufacturing data, test results, or the like") (emphasis added); *Brown* v. *Miska*, 1995 U.S. Dist. LEXIS 17197, at *11 (S.D. Tex. July 19, 1995) (in holding inadmissible engineer's testimony concerning design of automobile seatback, explaining that testimony "does not reflect the application of any particular methodology").

experience or observation rather than on some scientific method or technique. Yet that is precisely what the Tenth Circuit held in this case.

b. The Tenth Circuit's decision, although arguably consistent with the approach of the Second Circuit,[5] is also completely at odds with the rigorous *Daubert* scrutiny given in the Seventh and Eighth Circuits to expert engineering testimony proffered to prove (or disprove) design defects in product liability actions. For example, in *Pestel* v. *Vermeer Mfg. Co.*, 64 F.3d 382 (1995), the Eighth Circuit applied the *Daubert* factors in upholding the exclusion of a mechanical engineer's testimony that a stump cutter was defectively designed because it lacked a safety-bar guard. Chief Judge Arnold, writing for the court, explained that *Daubert* imposes on trial judges a "duty to screen such evidence for relevance and reliability" and to ensure that it is "scientifically based." *Id.* at 384. In that case, *Daubert* required that the expert testimony be excluded because (a) the expert "had not tested his guard"; (b) "the expert had not contacted others in the industry to

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[5] In *McCullock* v. *H.B. Fuller Co.*, 61 F.3d 1038 (2d Cir. 1995), the court of appeals held that a consulting engineer could testify concerning whether a worker in a book bindery whose work station was near a glue pot was within the "breathing zone" of the glue fumes, even though the engineer had no formal education concerning fume dispersal patterns and no experience performing air quality studies. *Id.* at 1042-43. The Second Circuit held that the engineer's testimony was based on "specialized" rather than scientific knowledge, and was sufficiently supported by his "extensive practical experience" with fumes. *Id.* at 1043. Accord *Comer* v. *Edelson*, 1995 U.S. Dist. LEXIS 11077, at *12-*13 (S.D.N.Y. Aug. 4, 1995) (holding *Daubert* inapplicable to electrical engineering testimony concerning design of paint-spraying compressor and spray gun); *Lappe* v. *American Honda Motor Co.*, 857 F. Supp. 222, 228 (N.D.N.Y. 1994) (refusing to apply *Daubert* to assess the reliability of a mechanical engineer's testimony about the design of an automobile's foot pedals and roof on ground that *Daubert* applies only to the admissibility of novel scientific evidence). In other cases, the Second Circuit has limited *Daubert* to "the admissibility of *scientific* evidence." *Tamarin* v. *Adam Caterers, Inc.*, 13 F.3d 51, 53 (2d Cir. 1993) (emphasis added); see also *Iacobelli Constr.* v. *County of Monroe*, 32 F.3d 19, 25 (2d Cir. 1994).

see if they had attempted to create a similar type of guard" and "had not subjected his concept to any manufacturers, academicians, or engineering professors, for scrutiny"; and (c) the expert "had not performed a patent search to determine whether other guards existed or whether guards for stump cutters were feasible," and "had not talked to any operators who worked with this type of machinery." *Ibid.* Under these circumstances, the engineer's testimony "was not scientifically valid" and was properly excluded under *Daubert*. *Id.* at 384-85.

More recently, the Eighth Circuit confirmed its strict adherence to the *Daubert* framework in *Peitzmeier* v. *Hennessy Industries, Inc.*, 1996 U.S. App. LEXIS 26115 (Oct. 4, 1996), a product liability case involving a claim that a tire-changing machine was defectively designed. In upholding the exclusion of the testimony of plaintiff's engineering expert, the Eighth Circuit expressly rejected the argument that *Daubert* "applies only to novel scientific evidence" and is therefore "inapplicable" to opinions "founded on basic engineering principles." *Id.* at *7-*8. The court examined the proposed engineering testimony under each of the four *Daubert* factors and found it wanting. With regard to testing, for example, the court explained that the proposed expert

> concedes that he has neither designed nor tested for safety or utility any of the proposed safety devices that he claims are missing from the Hennessy tire-changing machine. His only demonstration of an alternative design is a series of rough sketches that have not been adapted into engineering drawings, much less prototypes. [The expert] has shown no factual basis to support an opinion that his design changes are feasible or that they would not hinder the efficacy of Hennessy's present tire-changing model.

Id. at *8. Thus, the "proffered testimony does not satisfy the first *Daubert* factor." *Id.* at *9; see also *id.* at *9-*11 (discussing other *Daubert* factors). As *Pestel* and *Peitzmeier* make clear, the Eighth Circuit, in sharp contrast to the decision below, strictly applies the *Daubert* factors to expert engineering testimony in product liability actions.

The same is true of the Seventh Circuit. For example, in *Cummins* v. *Lyle Indus.*, 93 F.3d 362 (7th Cir. 1996), the court

upheld the exclusion of an expert engineer's testimony concerning the allegedly defective design of an industrial trim press. The Seventh Circuit rejected the argument that because "this case does not involve a matter of pure scientific theory, but rather the application of well-known instruments of the engineering profession to a particular and not-out-of-the-ordinary application," a "substantial deviation from the paradigm announced by the Supreme Court in *Daubert*" is warranted. *Id.* at 367 n.2. Accord *United States* v. *Lee*, 25 F.3d 997, 999 (11th Cir. 1994) (per curiam) ("*Daubert* applies not only to testimony about scientific concepts but also to testimony about the actual applications of those concepts."). Turning to the *Daubert* factors, the court observed that previous Seventh Circuit decisions "have recognized the importance of testing in alternative design cases." *Cummins*, 93 F.3d at 368. In view of the complexity of the necessary inquiry into alternative designs, the Seventh Circuit faulted the expert for failing to "conduct any testing to substantiate his opinion that the alternative test designs feasibly could have been incorporated into the Lyle trim press." *Id.* at 369. With regard to peer review, the Seventh Circuit explained that the expert "ha[d] not published any writing or study concerning the incorporation of any of the alternative designs into a trim press such as Lyle's." *Id.* at 370.

In another product liability action, *Deimer* v. *Cincinnati Sub-Zero Products, Inc.*, 58 F.3d 341 (1995), the Seventh Circuit similarly applied "the *Daubert* methodology" in upholding the exclusion of an expert engineer's testimony concerning an alleged defect in a hypothermia machine (used to regulate the body temperature of patients during surgery). With regard to the engineer's opinion that the design of the detachable velcro strap used to hold the machine's electrical cord in place was defective, the Seventh Circuit ruled that plaintiff's expert "could not be characterized as scientific" because the expert "did not conduct any studies or analysis to substantiate his opinion." *Id.* at 344. Instead, the witness "proffered unverified statements that were unsupported by any scientific method." *Id.* at 345.

These rulings cannot possibly be reconciled with the decision below. Under the Tenth Circuit's view, the experts in *Pestel*, *Peitzmeier*, *Cummins*, and *Deimer* could have avoided judicial

scrutiny of their expert engineering opinions through the simple expedient of disclaiming reliance on any "principle," "technique," or "methodology" of engineering science. Had those experts instead merely asserted, as Bihlmeyer did, that they were relying on their personal observations and on their general experience or training as engineers, then the jury would have been permitted to hear their "expert" opinions.[6]

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[6] The Seventh and Eighth Circuits are not alone in their application of *Daubert* to expert engineering testimony. On the contrary, many courts have applied the "list of reliability criteria articulated by the Supreme Court to ascertain whether mechanical design and engineering theories are 'scientifically valid.'" Nelson Apjohn & Suzanne Quill, *Post-'Daubert' Admissibility of Expert Testimony on Mechanical Design and Engineering Issues*, 23 PROD. SAFETY & LIAB. RPTR. 553, 553 (May 19, 1995). See, *e.g.*, *Carmichael* v. *Samyang Tires, Inc.*, 923 F. Supp. 1514, 1518-22 (S.D. Ala. 1996) (excluding testimony of engineer concerning design of tire); *Diviero* v. *Uniroyal Goodrich Tire Co.*, 919 F. Supp. 1353, 1356-57, 1359 (D. Ariz. 1996) (same); *Buckman* v. *Bombardier Corp.*, 893 F. Supp. 547, 555-57 (E.D.N.C. 1995) (excluding testimony concerning design of boat's keel, rudder, signal device, and stop switch); *Byrnes* v. *Honda Motor Co.*, 887 F. Supp. 279, 282 (S.D. Fla. 1994) (excluding testimony concerning design of motorcycle and absence of leg guard); *Hopkins* v. *NCR Corp.*, 1994 U.S. Dist. LEXIS 17273, at *19-*48 (M.D. La. 1994) (ruling inadmissible testimony of engineer concerning whether design of machine caused plaintiff to develop carpal tunnel syndrome), aff'd, 53 F.3d 1281 (5th Cir. 1995); *Stanczyk* v. *Black & Decker, Inc.*, 836 F. Supp. 565, 567-68 (N.D. Ill. 1992) (excluding engineer's testimony concerning the design of a miter saw). See also cases cited in note 4, *supra*.

In sharp contrast, the Second Circuit (see cases cited in note 5, *supra*) and district courts in several other circuits have refused to apply the *Daubert* factors to engineering testimony concerning design defects in consumer products. See, *e.g.*, *Freeman* v. *Case Corp.*, 924 F. Supp. 1456, 1466 (W.D. Va. 1996) (refusing to apply *Daubert* to testimony of mechanical engineer concerning design of riding mower on ground that *Daubert* does not apply in this "nonscientific context"; criticizing contrary decisions of Eighth Circuit in *Pestel* and Southern District of Florida in *Byrne* as "misguided"); *Edwards* v. *ATRO S.p.A.*, 891 F. Supp. 1074, 1082-84 & n.9 (E.D.N.C. 1995) (refusing to apply *Daubert* to

c. The Tenth Circuit's substantial reliance (see App., *infra*, 10a) on Bihlmeyer's experience in performing "numerous design analyses on the roof and roof support structure of various vehicles" during his eight-year career as a "consulting engineer" — a term the district court correctly described as "the time-worn euphemism for a professional witness" (*id.* at 17a) — is also in significant conflict with the approach of other circuits. For example, the Fourth Circuit has held that "it would be absurd to conclude that one can become an expert simply by accumulating experience in testifying." *Thomas J. Kline, Inc.* v. *Lorillard, Inc.*, 878 F.2d 791, 800 (1989), cert. denied, 493 U.S. 1073 (1990). Similarly, the Eighth Circuit in *Peitzmeier* rejected the argument that an engineer's theories concerning the allegedly defective design of a tire-changing machine had been subjected to peer review under *Daubert* because "he ha[d] testified about them in court in other products liability cases." 1996 U.S. App. LEXIS 26115, at *9; see also *id.* at *10 ("We reject the suggestion that cross-examination at trial and the number of * * * court appearances in design-defect cases can take the place of scientific peer review."); *Buckman* v. *Bombardier Corp.*, 893 F. Supp. 547, 556 (E.D.N.C. 1995) (rejecting argument that witness's "testimony and experiments in several cases as a product safety consultant" constitutes "some evidence of general acceptance" of expert witness's theories within the relevant scientific community). And

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engineering testimony concerning design of pneumatic nail gun; explaining that such testimony is based on "traditional technical or mechanical expertise" and not on any "method" that is "novel"); *Officer* v. *Teledyne Republic/Sprague*, 870 F. Supp. 408, 410 (D. Mass. 1994) (refusing to apply *Daubert* to engineer's testimony concerning design of a valve; explaining that "[w]hile *Daubert*'s principles have valuable application in determining the admissibility of controversial and novel scientific hypotheses, they have less use in fields like design engineering where 'general acceptance' is the norm, not the exception"). See also Lisa Agrimonti, *The Limitations Of Daubert and Its Misapplication To Quasi-Scientific Experts*, 35 WASHBURN L.J. 134, 147-48 (1995) (arguing that "[u]sing *Daubert* to screen quasi-scientific experts such as engineers" is "impractical" and usurps the jury's function and noting "split among the courts" on this issue and "lack of uniformity in *Daubert*'s application, particularly with regard to quasi-scientific experts").

the Ninth Circuit, on remand from this Court's *Daubert* decision, has explained that "a very significant fact to be considered" in making the admissibility determination is "whether the experts are proposing to testify about matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying." *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995) (Kozinski, J.). "That an expert testifies based on research he has conducted independent of the litigation provides important, objective proof that the research comports with the dictates of good science." *Ibid.* Accord *Pries* v. *Honda Motor Co., Ltd.*, 31 F.3d 543, 546 (7th Cir. 1994) (Easterbrook, J.) ("We find it comforting to see experts with analyses derived independently, rather than parroting a consistent (but often bogus) theory concocted by counsel.").

C. The Tenth Circuit's Decision Is Manifestly Incorrect.

The Tenth Circuit's decision is not only inconsistent with *Daubert* and in conflict with the rule applied in other circuits; it is also manifestly incorrect and — as this case compellingly shows — leads to absurd and indefensible results.

1. At bottom, the Tenth Circuit's analysis appears to be premised on a misreading of Rule 702, which provides:

> If scientific, technical, or other specialized *knowledge* will *assist the trier of fact* to understand the evidence or to determine a fact in issue, a witness *qualified as an expert* by *knowledge, skill, experience, training, or education*, may testify *thereto* in the form of an opinion or otherwise.

Fed. R. Evid. 702 (emphasis added). In *Daubert*, the Court made clear that the word "thereto" in Rule 702 refers back to the "scientific, technical, or other specialized knowledge" that is determined to be useful to the jury and that is the subject of the expert's opinion. The word "knowledge," this Court explained, implies that the proposed expert testimony or evidence must be *reliable*; and the phrase "assist the trier of fact" implies that it must be relevant. The Tenth Circuit's analysis, however, focuses on the different ways in which a person *may become qualified as an expert* to testify concerning "knowledge" that is "scientific, technical, or * * * specialized." But whether an expert's expertise

is acquired through "experience, training, or education," or is merely possessed by virtue of "knowledge" or "skill," in no way eliminates the requirement that the expert testify about some form of "knowledge" under Rule 702. Since the reliability requirement articulated in *Daubert* stems from the threshold "knowledge" requirement, the *source* of the expert's qualifications should not alter the need to show that the expert's testimony is reliable.

Nor is the Tenth Circuit's interpretation of Rule 702 even remotely administrable. The various methods by which an expert may become qualified under Rule 702 — through "knowledge, skill, experience, training, or education" — are overlapping and malleable, yet the Tenth Circuit's analysis singles out "training" and "experience" as a basis for avoiding *Daubert*. But knowledge and skill can be (indeed almost always are) *the result of* experience or training. To say that the *Daubert* framework disappears when the expert testifies from "experience" or "training" but not when he testifies from "knowledge" is thus to invite every expert merely to invoke the means by which he acquired his expertise, rather than the expertise itself, in presenting himself as an expert under Rule 702. And why should expertise based on "experience" be exempt from *Daubert* but not expertise based on "education" (seemingly a form of "experience")? It cannot be that the vital requirements set forth in *Daubert* are so easily circumvented.[7]

Moreover, the Tenth Circuit's decision, if permitted to stand, will lead to patently incorrect results. It would allow the expert witnesses who sought to provide testimony in *Daubert* to testify if, instead of seeking to justify their re-analysis, animal studies, and

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[7] To make matters worse, in addition to limiting *Daubert* to instances where an expert purports to rely on some "principle," "technique," or "methodology" but not on his "experience or training," the Tenth Circuit indicated that *Daubert* applies only "in cases involving * * * methodologies or techniques" that are "*unique, untested, or controversial.*" App., *infra*, 9a (emphasis added). Taken together, those statements effectively render *Daubert* a dead letter in the Tenth Circuit. *Daubert* will be applicable only when an expert relies on some unique, untested, or controversial methodology and then only when that expert cannot make a colorable claim to be relying as well on his "experience" or "training."

pharmacologic studies as scientifically valid methods, they had instead vaguely invoked their "experience" and "training" as a basis for an asserted ability to discern a causal link between Bendectin and birth defects. Indeed, it is difficult to imagine *any* kind of scientific expertise that could not be recast as based on the expert's "experience" and "training." And because there is no grammatical basis in Rule 702 to allow this exception to *Daubert* based on "training" and "experience" for expert engineering testimony but not for other forms of "scientific, technical, or other specialized knowledge," the logic of the Tenth Circuit's analysis obviously extends to any kind of expert testimony. Under the Tenth Circuit's view, then, a DNA expert could ignore shortcomings in her technique or methodology by explaining that her opinion is in fact based on her "experience and training" in identifying genetic linkages; a damages expert in a contract case could present an opinion that departs substantially from the prevailing standards of property valuation by nebulously invoking his "experience" in "the business world"; and a medical doctor could opine (without any scientific basis to do so) that a person's condition was caused by a certain chemical by alluding to her "experience" or training in hospitals. That cannot be the law.

In view of the serious analytical flaws in the Tenth Circuit's opinion, it is not surprising that it has already been the subject of criticism. As one authority on product liability law has noted,

> under *Compton*, if an expert attempts to use a scientific methodology, it must be reliable and trustworthy. But if an expert forgoes reliance on any established technique or methodology and, instead, injects his own personal opinions, the "intellectual rigor" Chief Justice Posner referred to in *Rosen* purportedly is unnecessary. Does the *Compton* approach thereby penalize the expert who, laudably, at least attempts to consider science but reward the one who, lamentably, avoids it? Something seems awry.

Michael Hoenig, *New Cases on Experts After "Daubert"*, N.Y. LAW J. 6 (May 13, 1996); see also *ibid.* (*Compton* is "controversial" and deserves "a long, hard look before it becomes the order of the day" because it "creates an escape hatch by which *Daubert*'s reliability factors can be bypassed").

At least one other commentator has identified the basic fallacy on which the Tenth Circuit rested its decision:

> Failure to appreciate the relationship between science and nonscience could lead to absurd results. For instance, a clinical psychologist seeking to testify on "child abuse accommodation syndrome," a subject most jurisdictions correctly exclude as insufficiently supported by sound scientific research, could claim to be resting on "technical or other specialized knowledge." Hence, pseudoscientists could draw the perverse conclusion from *Daubert* that the key to admission is to remain unscientific in order to avoid standards they find difficult to meet.

David Faigman, *Making the Law Safe For Science: A Proposed Rule for the Admission of Expert Testimony*, 35 WASHBURN L.J. 401, 422 (1996) (footnote omitted). The Tenth Circuit's holding rests on exactly that "perverse conclusion." See also *id.* at 426 (describing this reasoning as "scary, for it implies that the key to admission for disciplines that desire admission as experts is to *not* test their hypotheses" whereas "*Daubert* * * * require[s] otherwise.") (emphasis in original). The key to avoiding that absurd result, Professor Faigman correctly explains, is to require that "[i]f a discipline advances testable hypotheses, they must be tested before [they are] advanced in court." *Ibid.*

The Tenth Circuit plainly failed to grasp the distinction between expertise that is based in scientific knowledge (such as Bihlmeyer's engineering testimony) and expertise that is nonscientific in nature and rooted in technical or specialized knowledge. As the Sixth Circuit has explained,

> The distinction between scientific and nonscientific expert testimony is a critical one. By way of illustration, if one wanted to explain to a jury how a bumblebee is able to fly, an aeronautical engineer might be a helpful witness. Since flight principles have some universality, the expert could apply general principles to the case of the bumblebee. * * * On the other hand, if one wanted to prove that bumblebees always take off into the wind, a beekeeper with no scientific training at all would be an acceptable expert witness *if* a proper foundation were laid for his conclusions. The foundation

> would not relate to his formal training, but to his firsthand observations. In other words, the beekeeper does not know any more about flight principles than the jurors, but he has seen a lot more bumblebees than they have.

Berry v. *City of Detroit*, 25 F.3d 1342, 1350 (6th Cir. 1994) (emphasis in original).

The Tenth Circuit evidently believed that Bihlmeyer was more like the beekeeper than like the aeronautical engineer, and that he could plausibly testify about the Subaru's proper roof strength without applying accepted principles of engineering. That was simply wrong. Given the multiple complex scientific variables that are implicated in the design of an automobile's roof, Bihlmeyer could not offer an expert opinion that the Subaru's roof was defective based merely on his observation of other crashed vehicles (each of which was the result of a unique accident involving different speeds, vehicle weights and designs, and conditions). See *Cummins*, 93 F.3d at 369 (summarizing numerous considerations that inform engineering testimony concerning product design). Bihlmeyer's "experience" as an engineer was entitled to credit, if at all, only because he had previously employed the tools of scientific engineering to the analysis of specific vehicles and accidents. For that reason, it makes no sense to permit Bihlmeyer to testify without a showing that his opinion is reliably based in the scientific knowledge that undergirds his engineering expertise. Under the Tenth Circuit's logic, however, the plaintiff could simply have called an experienced junkyard attendant to opine on whether the Subaru wagon's roof was defectively designed.[8]

2. If the Tenth Circuit had properly applied the *Daubert* framework and factors, there can be little doubt that it would have

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[8] The Tenth Circuit's reliance on several of its previous cases, see App., *infra*, 8a (citing *United States* v. *Rice*, 52 F.3d 843 (10th Cir. 1995); *United States* v. *Markum*, 4 F.3d 891 (10th Cir. 1993); and *United States* v. *Muldrow*, 19 F.3d 1332 (10th Cir.), cert. denied, 115 S. Ct. 175 (1994)), was fundamentally misplaced because each of those cases involved nonscientific "specialized knowledge" that was acquired by the expert through direct observation, in sharp contrast to the complex engineering testimony based in scientific knowledge and methodology that is at issue here.

concluded that Bihlmeyer's testimony was inadmissible. It is undisputed that Bihlmeyer did not test the accident vehicle or the exemplar, and that he did not test his alternative design; it is undisputed that the standard he proposed vastly exceeded the applicable federal standard and was unsupported by any industry standard that had actually been implemented on a manufactured vehicle; and it is undisputed that Bihlmeyer had never published or subjected to peer review his novel theory of defect, and his opinion had been formed solely for the purpose of this litigation (and indeed was based largely on his "experience" as an expert witness for plaintiffs in other cases). The conclusion is inescapable that any automobile roof actually built to Bihlmeyer's specifications would have been wildly *unsafe*. The district judge correctly observed that Bihlmeyer's "seat-of-the-pants" design criteria seem "more applicable to a Sherman tank than to any vehicle which the ordinary consumer would drive." App., *infra*, 20a n.5.

In these circumstances, Bihlmeyer's testimony was plainly inadmissible under *Daubert*, because it consisted of mere "subjective belief or unsupported speculation" (*Daubert*, 509 U.S. at 590), and it would have been an abuse of discretion to admit it. "Experts cannot float their conclusions on cushions of air; they must rest those conclusions upon foundations built from reliable scientific explanation." *Navarro* v. *Fuji Heavy Indus., Ltd.*, 925 F. Supp. 1323, 1328 (N.D. Ill. 1996). As the district judge observed, Bihlmeyer had "little if any knowledge" about the subject matter of his testimony (App., *infra*, 25a), and his testimony about roof design was "the most ill-supported weakest personal opinion I've ever heard." Pet. C.A. App. 235. Allowing a jury to award almost $7 million in damages based solely on such "expert" testimony disregards the teachings of *Daubert*, insults the science of engineering, and fosters disrespect for the legal process.

D. The Issues Presented Are Important And Recurring.

It cannot seriously be disputed that this case presents a significant issue of federal law. As two Members of this Court explained in *Daubert* itself, the standards governing the admissibility of expert testimony in federal trials are an "important area of the law." 509 U.S. at 601 (Rehnquist, C.J., joined by Stevens, J., concurring in part and dissenting in part). The trial judge's duties under Rule 702 have, if anything, attained even

more significance in recent years as a consequence of the "enormous increase in the use of scientific evidence" in federal litigation. *Developments in the Law: Confronting the New Challenges of Scientific Evidence*, 108 HARV. L. REV. 1481, 1485 (1995). As this Court is acutely aware, the federal courts are being called upon with greater frequency to adjudicate a wide array of complex new disputes, including mass tort, product liability, and environmental litigation, whose outcomes depend in no small measure on the presentation of expert testimony. The increased use and importance of expert testimony has, in turn, prompted public "[c]oncerns with the abuse of the litigation process" to be "voiced ever more loudly." *Braun* v. *Lorillard Inc.*, 84 F.3d 230, 233 (7th Cir. 1996) (Posner, C.J.), petition for cert. filed, 65 U.S.L.W. 3185 (No. 96-377) (Sept. 11, 1996). See generally PETER HUBER, GALILEO'S REVENGE: JUNK SCIENCE IN THE COURTROOM (1991).

Equally plain, we submit, is the vital significance of the question whether, and how, the *Daubert* framework should be applied by trial judges to assess the admissibility of expert engineering testimony in product liability actions in the federal courts. Many if not most such actions include claims that consumer products are designed in a defective manner. Engineers are routinely called in these cases to demonstrate (or disprove) the existence of a defect. This case is accordingly representative of a broad category of federal litigation in which the district courts are struggling to apply *Daubert*. See notes 5-6, *supra*; see also *Daubert*, 509 U.S. at 600 (Rehnquist, C.J., joined by Stevens, J., concurring in part and dissenting in part) (predicting that "questions will surely arise when hundreds of district judges" seek to apply *Daubert*'s teaching). In addition, in many design defect cases, as in this case, liability turns on a "battle of the experts," and resolution of the admissibility question is outcome-determinative. The proper application of *Daubert* to expert engineering testimony is therefore an important question of federal law. And, as previously explained, it is a question as to which the circuits have provided conflicting answers.

What is more, the validity of the Tenth Circuit's new-found exception to *Daubert* is significant because it creates a gaping loophole that can be used to bypass the *Daubert* framework. In

this regard, the Tenth Circuit's analysis may represent only the latest — but certainly the most troublesome — of a series of "avoidance techniques" that, according to some commentators, judges have employed to avoid their "gatekeeping" obligations under *Daubert*. See *Developments*, 108 HARV. L. REV. at 1514; see also *Daubert*, 43 F.3d at 1315 (Kozinski, J.) (referring to the "daunting," "complex," and "difficult" tasks required under *Daubert* and to the "uncomfortable position" of trial judges). Because the Tenth Circuit's analysis contains the potential to insulate vast amounts of expert testimony from scrutiny for reliability and relevance, its correctness is of critical importance to the proper administration of Rule 702.[9]

The need for this Court's review is all the more pressing because, even in the short time since the Tenth Circuit's highly-publicized decision was announced, district courts have begun to rely on it to avoid *Daubert*. See *Liriano* v. *Hobart Corp.*, 1996 WL 304337, at *4-*5 (S.D.N.Y. July 23, 1996) (relying on and endorsing Tenth Circuit's analysis in rejecting request to exclude testimony of safety consultant; explaining that *Daubert* is inapplicable because expert relied on his "experience and training in the established field of industrial safety, and not on any novel scientific method or technique"); *Waitek* v. *Dalkon Shield Claimants Trust*, 1996 U.S. Dist. LEXIS 11141, at *51 n.10 (N.D. Iowa July 31, 1996) (relying on and endorsing Tenth Circuit's analysis in rejecting argument that *Daubert* applies to testimony of treating physician concerning whether plaintiff's

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[9] The importance of the proper interpretation of *Daubert* and Rule 702, of course, extends beyond federal law. See, *e.g.*, *State* v. *Foret*, 628 So.2d 1116, 1121-27 (La. 1993) (adopting and applying reasoning of *Daubert* in construing identical language of La. Civ. Evid. art. 702; holding inadmissible testimony by child psychologist concerning Child Sexual Abuse Accommodation "Syndrome"); *E.I. Du Pont De Nemours & Co.* v. *Robinson*, 923 S.W.2d 549 (Tex. 1995) (adopting reasoning of *Daubert* in construing Tex. R. Civ. P. 702). See generally Michael Hoenig, *New Cases on Experts After "Daubert"*, N.Y. LAW J. 6 n.4 (May 13, 1996) ("Since many states have adopted evidence codes similar to the federal rules, *Daubert*'s reliability and admissibility criteria can exert an influence in state courts as well.").

illness was caused by Dalkon Shield; witness relied on his "experience and training" as a physician and not on any "particular methodology or technique"). Unless this Court quickly intervenes, there will no doubt be a large volume of unproductive litigation over the applicability of the Tenth Circuit's novel "exception" to *Daubert*, which authorizes the admission of expert evidence that is eccentric and methodologically unsound. In view of the obvious incompatibility between the opinion below and *Daubert*, the conflicts and confusion in the lower courts over whether and how *Daubert* applies in this context, and the general need for additional guidance in this important area of federal law, there is no good reason to permit the inevitable waste of judicial resources that would follow from a denial of review.[10]

Finally, it can hardly be denied that the issues presented in this case arise with overwhelming frequency. In the three years since *Daubert* was decided, the case has been cited some 450 times by the lower federal courts. Many, if not most, of those cases directly resolve issues of admissibility of expert testimony. Moreover, according to the most recent statistics compiled by the Administrative Office of the U.S. Courts, a total of 38,909 new product liability actions were filed in the federal district courts in the 12 months ending on June 30, 1996 alone. Administrative Office of the U.S. Courts, Statistics Division, ANNUAL REPORT OF THE DIRECTOR, table S-7 (unpub. 1996). As previously explained, many of those product liability actions include design defect claims and the presentation of expert engineering testimony. In these

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[10] Courts and commentators have identified a number of ambiguities in the *Daubert* opinion and remarked on the divergence of interpretation in the lower courts and the need for further guidance from this Court. See, *e.g.*, *Rosen*, 78 F.3d at 318 (Posner, C.J.) (acknowledging "the uncertainty concerning the reach of the majority opinion" as "discussed in the Chief Justice's separate opinion"); App., *infra*, 15a n.1 (district court opinion); G. Michael Fenner, *The Daubert Handbook: The Case, Its Essential Dilemma, And Its Progeny*, 29 CREIGHTON L. REV. 939, 953 (1996); Michael Polentz, *Post-Daubert Confusion With Expert Testimony*, 36 SANTA CLARA L. REV. 1187, 1203 (1996); Lisa Agrimonti, *The Limitations Of Daubert and Its Misapplication To Quasi-Scientific Experts*, 35 WASHBURN L.J. 134, 147-48 (1995).

circumstances, further illumination by this Court of *Daubert*'s meaning and its application to an extremely common type of federal lawsuit (and a very common form of expert testimony) would provide helpful guidance to the "district judges and other front-line federal judicial officers" around the country who are charged, under *Daubert*, with "prevent[ing] litigation from * * * being degraded by 'junk science.'" *Braun*, 84 F.3d at 233 (Posner, C.J.).

CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted.

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